

### Abstract

The present invention relates to identification tagging, and is specifically directed to identification tagging of ammunition. An isotopic taggant is deposited in a layer at the interface between the primer and the propellant so that, as the ammunition is fired, the taggant is dispersed throughout the propellant. The taggant is thus contained in the gunshot residue formed during the firing, and can be read by analysis of residue particles. Alternatively, the taggant may be deposited in a layer under the primer reactants, or in pellets which are easily destroyed by the chemical reactions involved in firing the ammunition, again dispersing the taggant throughout the propellant and the gunshot residue. Non-isotopic chemical taggants may also be employed if they are encoded so as to minimize the possibility of the information being destroyed or improperly read after the taggants are exposed to the chemical reactions in firing the ammunition. This is accomplished by employing a binary coding system and a system of authentication tags. Particulate taggants may also be used. The required large number of unique identification tags are obtained by using a fragmented coding system wherein each particle encodes only a portion of the serial number.

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